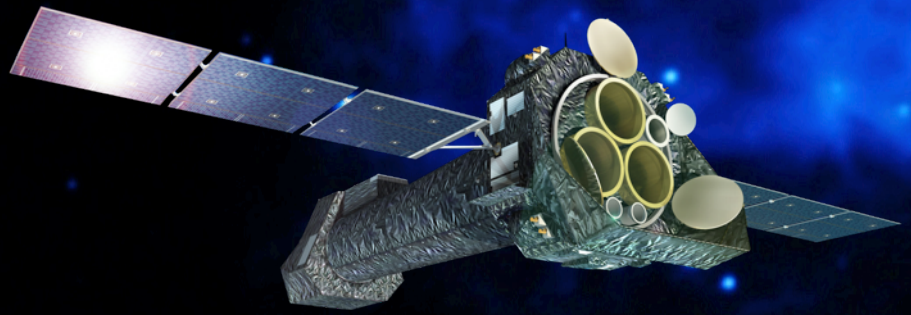
XMM-Newton
Overall Mission Status



Peter Kretschmar, Mission Manager

XUG Meeting #19

17–18 May 2018, ESAC

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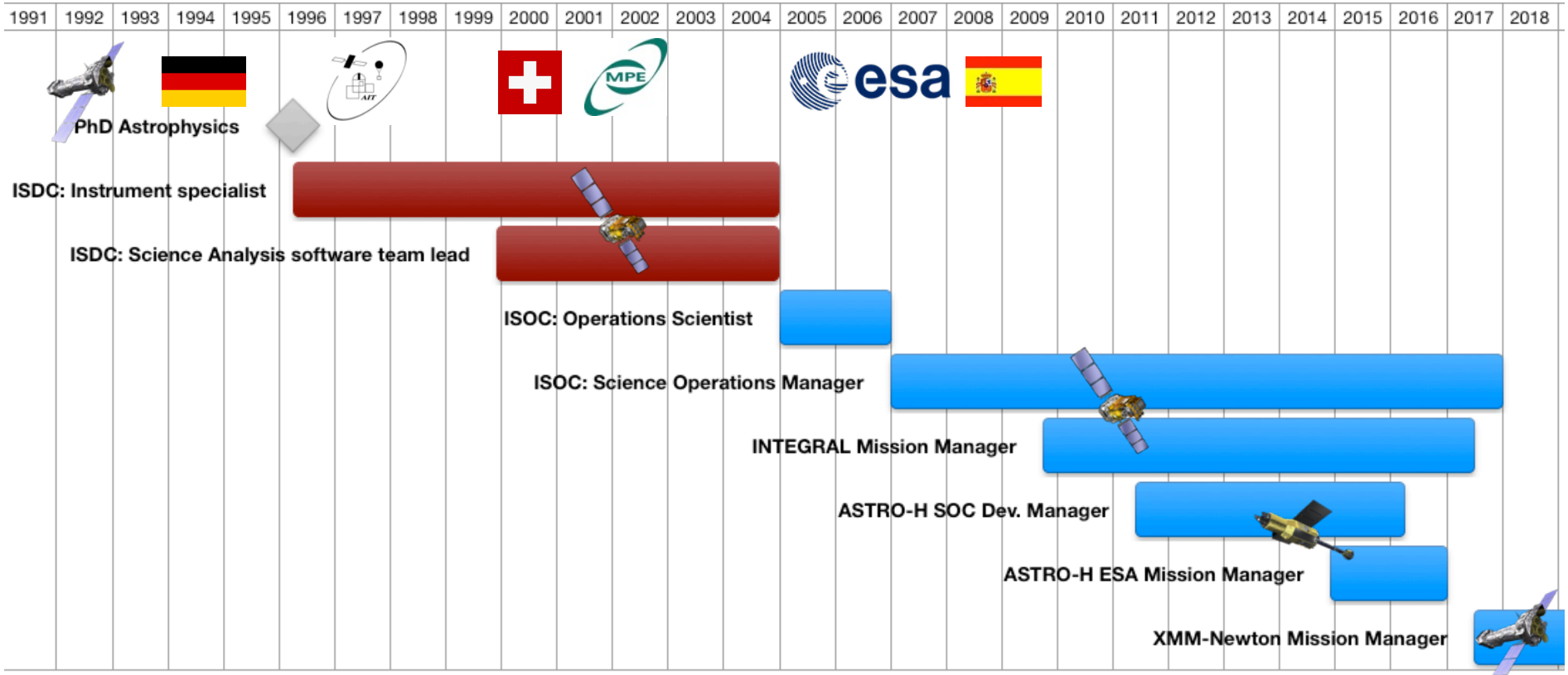
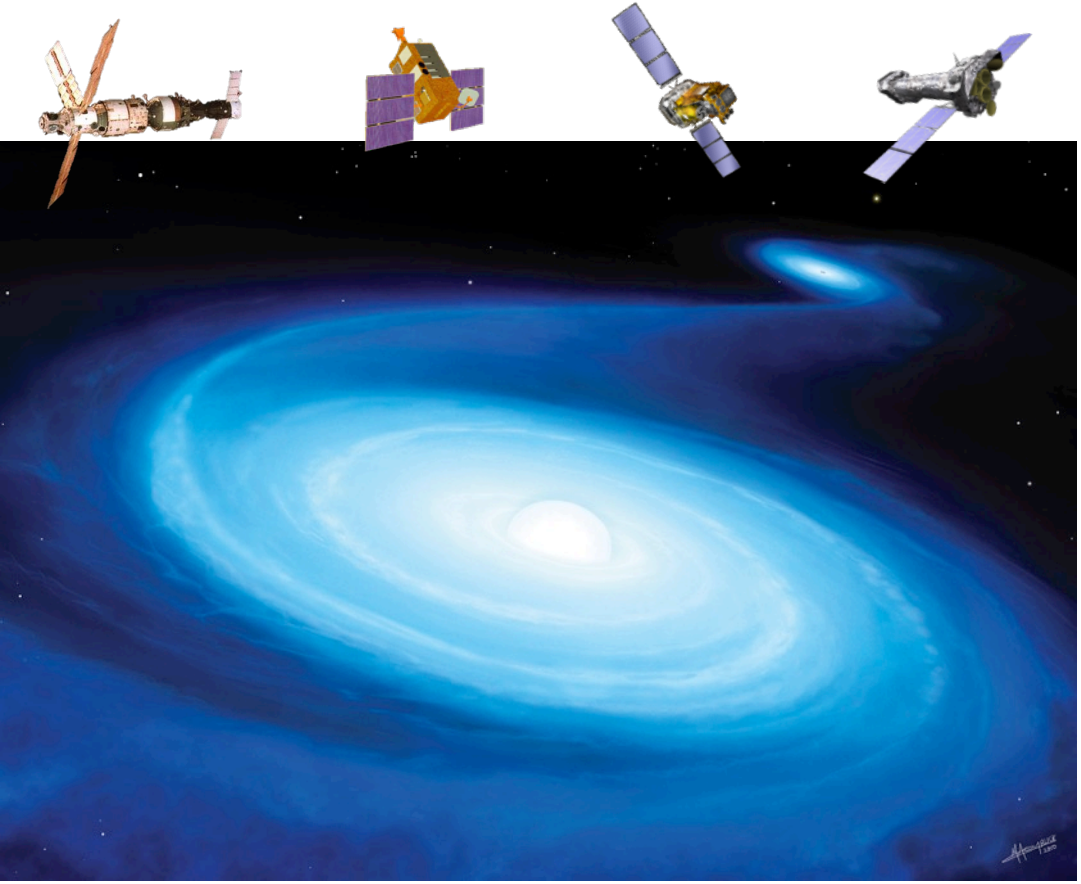
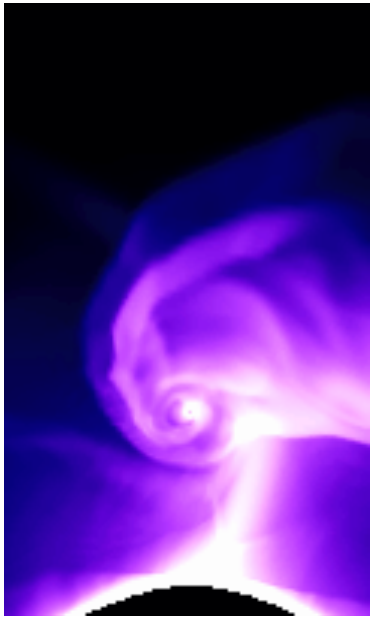
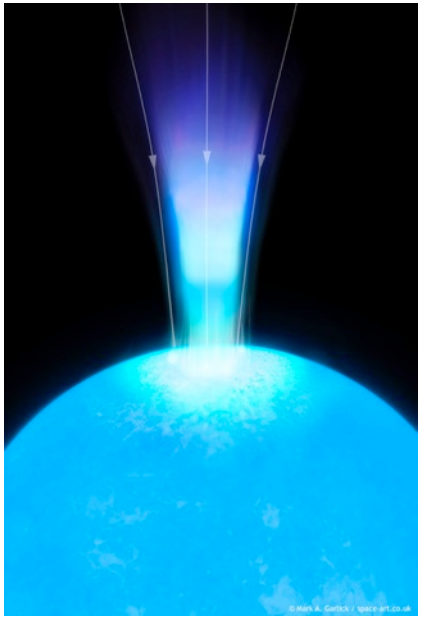
Please allow me to introduce myself … Projects



Please allow me to introduce myself … Science



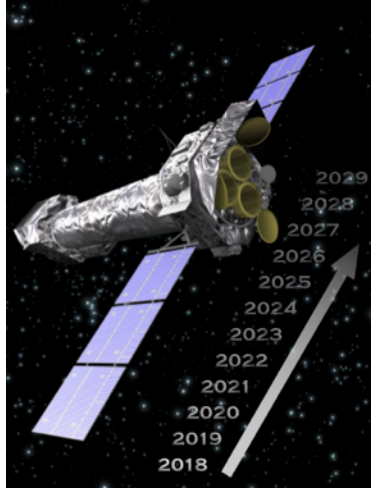




Going from Extension to Extension

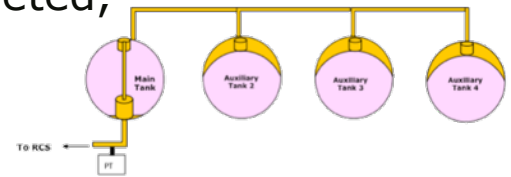
- SPC unanimously approved an indicative extension to the operations of XMM-Newton (and other missions) in November 2017. Also approved indicative extension of Gaia in November 2017 and for INTEGRAL in February 2018.
  Gaia & INTEGRAL relevant for overall budget, due to SPACON merger.
- Next Mission Extended Operations Review (MEOR) coming up on June 5th.
  No specific issues expected: hardware in good shape and productivity high.
  Now close to 5600 papers in refereed literature: 1 paper / 29 h since launch.
  ☛ see also presentation by N. Schartel
- Mission Extension process then expected to be as on previous occasions, with 7 page extension case including 5 pages of science case for fall meeting of SPC.

The mission remains in very good shape



- EPIC cameras in same shape as for UG #18. No major incidents.
- Unfortunately, small damage (0.3% of surface) to Optical Monitor by accident.

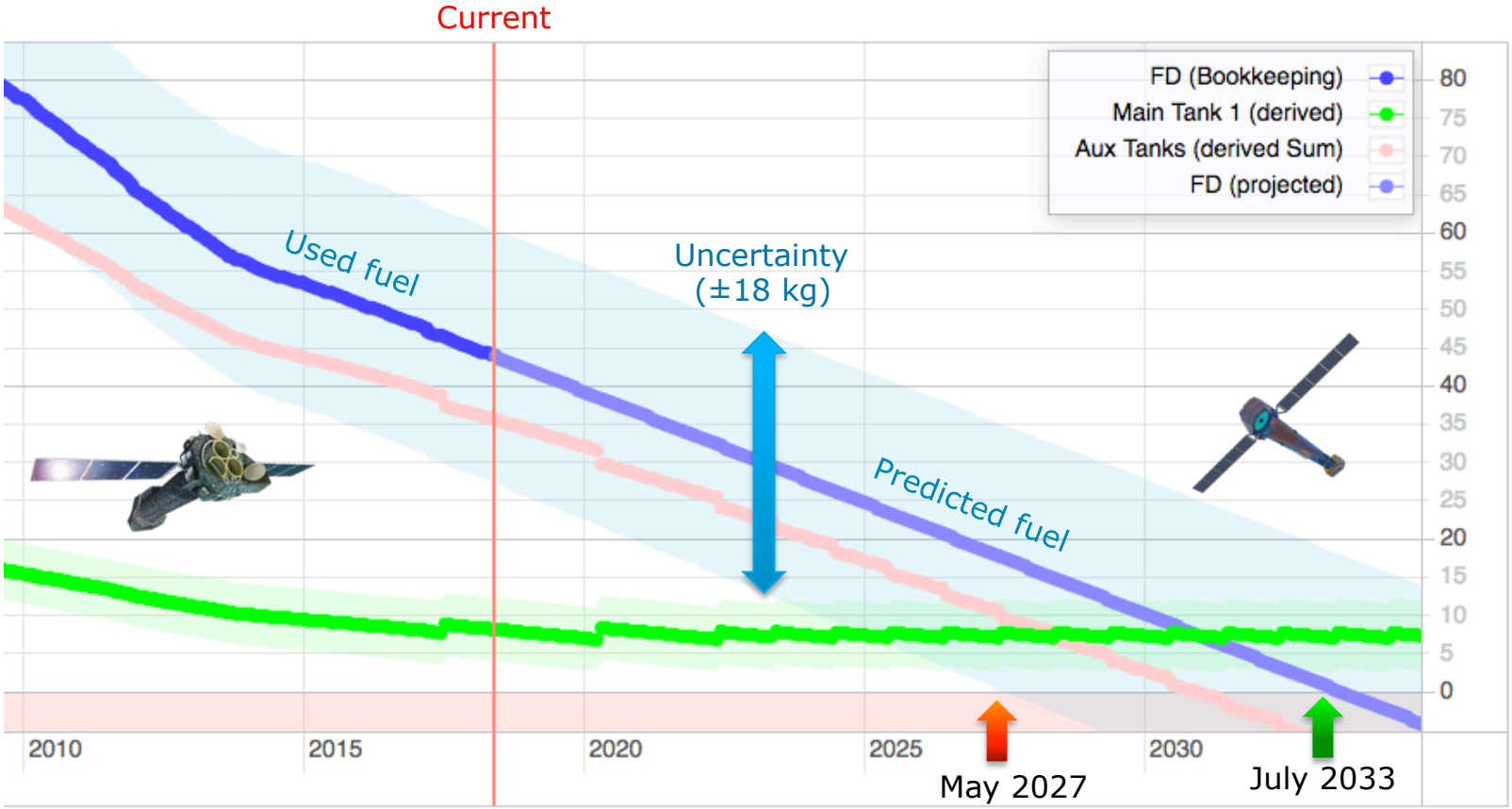
  ☛ see presentation by A. Talavera
- The first phase of the fuel migration was successfully completed, in June 2017. This should ensure operations deep into the 2020s.



- Common Gaia/XMM-Newton/INTEGRAL SPACON team has been implemented and is formally in operations since 11 April 2018 after **lengthy and intensive** preparation.

  ☛ see presentations by M. Kirsch and M. Ehle

Fuel through the 2020's

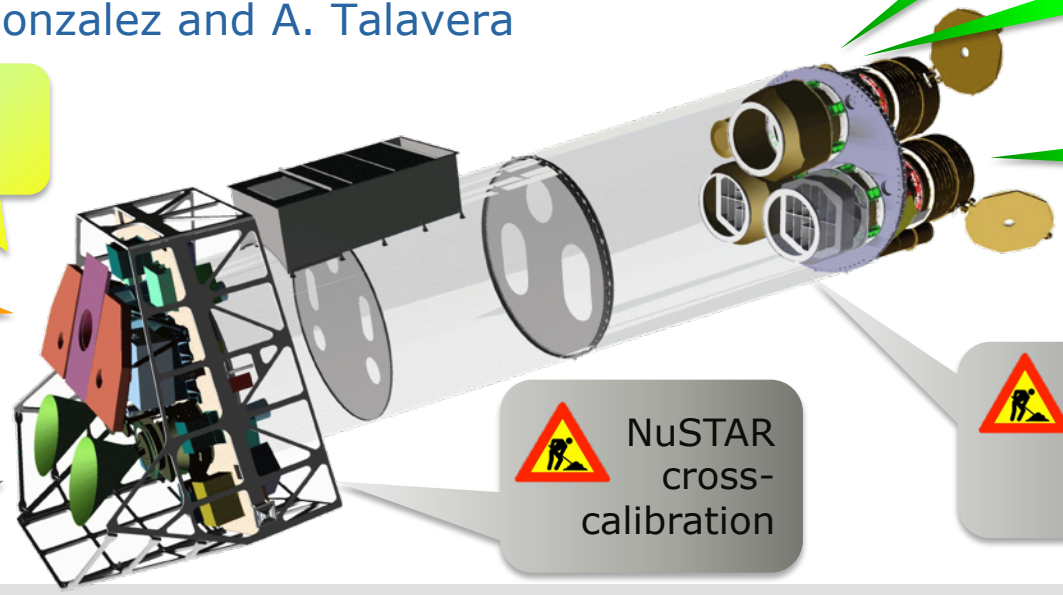


Moving forward on payload calibration

UG recommendations have been addressed, as possible, and there is progress on various areas.

Other areas, especially also for cross-calibration remain

☛ see presentations by M. Smith, R. Gonzalez and A. Talavera



OM time dep. sensitivity corr. updated

New OM bad pixel map

XRT PSF modification

RGS eff. area change

NuSTAR cross-calibration

PN Timing & Burst Mode

PN gain correction

EPIC eff. area correction

A strongly evolving SOC

- In 2018 and early 2019 several key people will retire: Ramón Muñoz, Antonio Talavera & Carlos Gabriel. Matthias Ehle is leaving XMM-team.
- New team members: Eva Verdugo, Ivan Valtchanov – half time in 2018, 80% and 100% in 2019ff. Focus on instrument support & calibration. More additions expected later, 2019 the latest.

➥ Loss of expertise, need to reorganise work within team.

➥ Use momentum of unavoidable change to revisit SOC and Ground Segment, considering changes and updates to technology, software, interfaces, procedures, structures, … **preparing for the 2020s**, while **delivering uninterrupted support**.

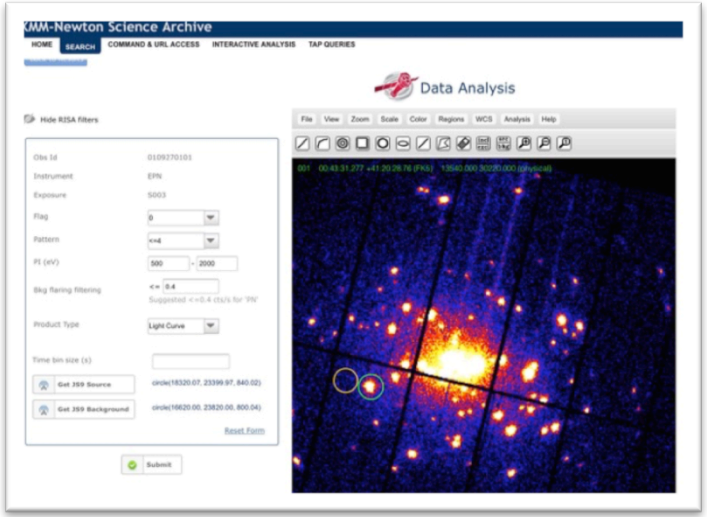
Implementing the roadmap for long-term operations

- Post-operations Roadmap developed in 2016 & 2017. Many elements not only relevant for post-operational phase, but also for mid- to long-term evolution of software, pipeline and archive.

➥ Pipeline is being updated to, e.g., give pile-up information and spectra/lightcurves for bright sources. Preparing for bulk re-processing of all data.

➥ Science Analysis Software (SAS) is being made future proof: e.g., by use of Python, documentation improvements, VM/Docker technology, …

➥ Remote Interface for Science Analysis (RISA), allows analysis through XSA Archive.
Currently ~2 jobs per day.



In summary

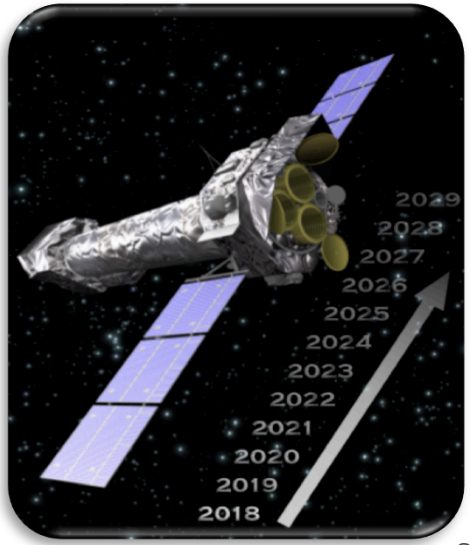
Stable community interest and productivity

Spacecraft & instruments remain in good shape

Less fuel use & tank replenishment ensure many more years

Progress in (cross-)calibration, but several open issues

Good progress on tasks from roadmap, effort continues



SPACON merge
➟ impact on science
➟ mitigation effort

Major changes in SOC, e.g., due to retirements